Salmon Program

State Recovery Projects
Application Project Summary

TITLE:	Union Estuary Johnson Farm Dike Design - 136	**NUMBER:**	09-1639N (Non-Capital)
		STATUS:	Preapplication
APPLICANT:	Hood Canal SEG	**CONTACT:**	Neil Werner (360) 275-0373

COSTS:

RCO	$130,080	100 %
Local	$0	0 %
Total	$130,080	100 %

SPONSOR MATCH:

DESCRIPTION:

Need - Approximately 45 acres of prime wetlands have been cut off from normal tidal action by a historic dike in the esturary of the Union River. This situation is now reverseable.
Goals - Breach the existing dike and return the wetlands to prime salmonid habitat.
Scope - Follow up the work of several feasibility studies and options to develop the design and permitting so construction can start in the 2010 window.
Outcomes - An environmental and community driven design that makes best use of this critical piece of land.
Community involvement - there have been thirty-three (33) public outreach activities between 12-2005 and 02-2009 resulting in strong community support and involvement.
Previous/Anticipated Phases - Previously produced a consultant developed feasibility study, resulting in numerous stakeholder inputs resulting in five (5) separate conceptual plans around a central theme. This project will assess the existing conceptual plans and develop the final engineering, design and permits needed to begin construction during the 2010 window.

LOCATION INFORMATION:

LEAD ENTITY ORG: Hood Canal Coor Council LE

COUNTY:

GOAL & OBJECTIVE:

The goal of the project is to increase/improve information to help select projects that have a high certainty and benefit.
The objective of the project is to determine project siting, feasibility, design, or implementation.

SALMON INFORMATION: (* indicates primary)

Species Targeted

Chinook
Chum*
Coho
Steelhead

Habitat Factors Addressed

Estuarine and Nearshore Habitat
Floodplain Conditions
Loss of Access to Spawning and Rearing Habitat
Water Quality
Water Quantity

LAST UPDATED:	June 19, 2009	**DATE PRINTED:**	June 25, 2009

Non Capital Cost Estimate Summary

Hood Canal SEG **09-1639 N**

Union Estuary Johnson Farm Dike Design - 136 **Salmon State Projects**

Element/Item	Unit	Quantity	Unit Cost	Total Cost	Description Needed	Description
Worksite #1, Johnson Farm - WDFW Dike						
Permits						
Permits	Lump sum		$5,000.00	$5,000.00	Optional	Required permits
Professional Services						
Consultant(s)	Lump sum		$35,000.00	$35,000.00	Optional	Assessment of Feasibility Studies and Options
Consultant(s)	Lump sum		$80,000.00	$80,000.00	Optional	Final Engineering Designs
Project Tax Amount				$10,080.00		
Project A&E Amount				$0.00		
Project Total Costs				**$130,080.00**		

Union River Estuary-Johnson Dike Assessment & Design #136

PROJECT PROPOSAL – NON-CAPITAL PROJECTS AND COMBINATION PLANNING/ACQUISITION PROJECTS (EXCLUDING BARRIER INVENTORIES)

INSTRUCTIONS: Salmon Recovery Funding Board applicants must respond to the following items. Please respond to each question individually -- do not summarize your answers collectively in essay format. Local citizen and technical advisory groups will use this information to evaluate your project. Contact your lead entity for additional information that may be required. Limit your response to eight pages.

Submit information via PRISM attachment process. Application checklists and attachment forms may be downloaded off the SRFB Web site at http://www.rco.wa.gov/srfb/docs.htm.

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1) PROJECT OVERVIEW

Explain your project overall and include the following elements:

a) List your primary project objectives, such as how this project will contribute to understanding or restoring salmonids within the ecosystem. For example, the objectives might be to characterize the extent and nature of a certain factor limiting salmonid productivity, identify sources that contribute to the problem and prioritize restoration and management activities to address the problem; to assess landowner willingness to participate in a future land acquisition or restoration project; or to determine project location, feasibility, and design.

Salt Marsh Reclamation - Approximately forty-five (45) acres west of Roessel Road will be returned to salt marsh and freshwater wetlands. The existing dike will be breached to allow reclamation to proceed naturally. Bridges will be constructed over the breached areas so that the existing trail system will be maintained. This reclamation project will reclaim almost 23% of the Union River estuary.

b) State the nature, source, and extent of the problem or gap in knowledge that the project will address, including the primary causes of the problem, not just the symptoms. Explain how achieving the project objectives will help solve the problem.

At the turn of the 19th century (Attachment A) a 3,300 foot dike was constructed in the salt marsh wetlands of the Union River Estuary in Belfair, WA. The dike cut off 45 acres from tidal influences resulting in marginal farm land historically used to raise hay (Attachment B). Development of the needed final engineering designs and permits will allow construction breaching of the dike during the 2010 season thus returning 45 acres of prime salt marsh habitat in this critical natal zone (Attachment C).

c) Describe the fish resources (species and life history stages present, unique populations), the habitat conditions, limiting factors, and historic factors important to understanding this project. Be specific-- avoid general statements. Which salmonid species and life cycle stage(s) are targeted to benefit by this project?

Protection and restoration of 45 acres of nationally and regionally declining estuarine and coastal freshwater wetlands within the Union River estuary will enhance the ecological function and habitat of a site that has numerous benefits for threatened and endangered species.

Specifically, protection of estuarine and freshwater wetlands is important locally for federally-listed anadromous salmonids. In Hood Canal, federally-threatened Hood Canal summer chum and Puget Sound Chinook salmon use estuarine and tidal marsh habitat

during their juvenile rearing stage, as do Puget Sound/Strait of Georgia coho (federal species of concern) and Puget Sound steelhead trout and coastal Puget Sound bull trout (both federally threatened). These fish spawn in the Union and other local rivers. Current spawner counts and historic evidence reviewed by the Hood Canal Salmon Enhancement Group (HCSEG) suggest that summer chum, coho, chinook and possibly steelhead will utilize the Union River estuary when restored to provide proper habitat function. This project will address all the limiting factors for salmon habitat in the lower Union River identified by the Watershed Resource Inventory Area (WRIA) 14N & 15W Limiting Factors Analysis (2002), namely channel confinement and floodplain connectivity.

d) *Describe how this project fits within your regional recovery plan or local lead entity strategy (i.e., Does the assessment fill a data gap identified as a priority in the lead entity's strategy or regional recovery plan? Does the project address a priority action, occur in a priority area, or target priority fish species?).*

This project is the number one listed project for the watershed in the Lead Entities "Three-Year Watershed Implementation Priorities for Hood Canal Coordinating Council". The project is classified as Domain 1 which represents natal freshwater and sub-estuarine habitats for 7 extant summer chum subpopulations, 2 extant chinook populations, and 1 extant bull trout subpopulation in the HCCC Lead Entity area.

e) *Has any part of this project been previously reviewed and/or funded by the Salmon Recovery Funding Board? If yes, please provide the project name and SRFB project number (or year of application if a project number is not available). If the project was later withdrawn for funding consideration or was not awarded SRFB funding, please describe how the current proposal differs from the original.*

No.

When possible, list your sources of information by citing specific studies, reports, and other documents.

2) PROJECT DESIGN

a) *Describe the location of the project in the watershed, including the name of the water body(ies), upper and lower extent of the project (if only a portion of the watershed is targeted), and whether the project occurs in the nearshore, estuary, main stem, tributary, off channel, or other location.*

The Johnson Farm project site is located at the intertidal junction of the Union River (WRIA 15.0503) and the Hood Canal.

b) *If the project will occur in phases, explain individual sequencing steps and which steps are included in this application.*

Phase I of the overall Pacific Northwest Salmon Center (PNWSC) development plan consisted of feasibility studies generated both in house and contracted.

Phase II saw the purchase of the 90 acre complex with WDFW purchasing the 45 acres designated as historic salt marsh and the PNWSC purchasing the remaining 45 acres. Additionally, site specific Marsh Reclamation Preliminary Plans were developed in response to community and habitat professional's input (Attachment D).

Phase III (This phase) will result in the development of the Final Project Design leading to full permitting in preparation for the 2010 construction window.

Phase IV will consist of the dike breaching as well as trails and facility upgrades for the PNWSC.

c) *Describe what products will be produced (i.e., project deliverables). If a project design will be produced, what stage of project development is proposed (conceptual, preliminary, or final-- refer to Appendix D – Project Development Phases Defined)?*

Phase III Final Project Design

The final design process addresses and resolves all substantial issues that have been raised in the permitting and stakeholder review process, so that all stakeholders agree on the final plans. As with the preliminary design work, preparation of the final design will be done under the supervision of a licensed Professional Engineer.

Final Design tasks include:

(1) Revision of preliminary design drawings

(2) Preparation of additional detailed drawings as needed to clarify the design of specific work items

(3) Preparation of technical specifications to fully describe each part of the work.

(4) Preparation of a final construction cost estimate

(5) Preparation of contract bidding documents and general contract conditions.

Final Project Design concludes with a comprehensive and detailed set of project drawings, technical specifications, and contract documents. An "Engineer's Estimate" of construction cost will also be prepared by the designer, for comparison with estimates provided by general contractors (bids).

d) *Explain how the results of the project will lead directly to habitat restoration projects that benefit salmonids.*

"Hood Canal is host to a complex network of mudflats, dendritic tidal channels, lagoons, salt marshes, eelgrass beds, and sandy beaches that provide estuarine habitat for both juvenile and adult salmonids as well as the prey they depend upon. Chum (ESA Listed species) fry appear to prefer to make this transition within the brackish water (10-15 %0-parts/thousand-salinity) lens. In the absence of extensive emergent wetlands and dendritic tidal channels on the delta, large influxes of freshwater likely push chum fry out into Hood Canal with the freshwater plume (Kuttel 2003)". It therefore stands to reason that breaching the dike and returning approximately 23% of the Union River estuary to its native array of mudflats, dendritic tidal channels, lagoons, and salt marshes will directly benefit juvenile and adult salmonids as well as the prey they depend upon.

e) *If your proposal includes a Fish Passage or Screening Design/Feasibility Study*:

N/A

f) *If your proposal includes an Assessment or Inventory (NOTE: project may extend across a wide area and cover multiple properties)*:

N/A

3) PROJECT DEVELOPMENT

a) List the individuals and methods used to identify the project and its location.

Neil Werner – HCSEG	Richard Brocksmith – HCCC
Bruce Dees & Associates	Rich Geiger – Mason Conservation District
Randy Johnson – WDFW	Rich Carlson - USFWS
John Blankenship – Business Analyst	Fred Barrett - PNWSC

b) Explain how the project's cost estimates were determined.

With numerous similar environmental projects completed in the Hood Canal Watershed, Bruce Dees & Associates. developed the budget based on their drawings provided in the proposal. Cost estimates were spot checked with local construction subcontractors for reasonableness.

c) Describe other approaches and design alternatives that were considered to achieve the project's objectives.

Design Alternatives Engineered and Mapped include:

- Dike removed and no setback dike; large area flooding with full flood tide to elevation 15.5'
- Remove existing dike almost entirely, leaving a section at the south end as a scenic overlook. Construct setback dike at elevation 17.5' following roughly the 1890 shoreline.
- Existing dike to remain in place with three breaches. Construct setback dike at 17.5 el., following roughly the 1890 shoreline. New trail tops setback dike. Pile supported bridge crossings constructed to link the existing trail. New trail constructed on the set back dike.
- Most of the existing dike to be completely removed. Construct setback die at 17.5 el., following roughly the 1890 shoreline. Pier supported walkway traverses the reclaimed area for public access. New trail tops setback dike.
- Remove almost the entire existing dike. Construct setback dike at 17.5 el., following roughly the 1890 shoreline. New trail tops setback dike. New trail constructed on the set-back dike.
- Dike is breached in two optimum locations. Breach width is dependent upon obtaining optimum flow and wave action. Excavation the existing dike generally follows the original channels shown on the 1890 T-sheets, also will create a channel between the two breaches so that water is generally present in this are regardless of tidal action. Other areas will be shaped to enhance diversity, initiate a marsh plant community restoration, and provide diverse animal habitat.

d) Describe the consequences of not conducting this project at this time. Consider the current level and imminence of risk to habitat in your discussion.

The status quo means 23 % of the historic Union River Estuary, arguably the most sensitive portion due to the proximity of historic mudflats, dendritic tidal channels, lagoons, salt marshes and eelgrass beds will remain unavailable for juvenile and adult

salmonids and their prey. This would be particularly negligent due to the renewed importance of the Union River for the reemergence of Hood Canal Summer Chum an ESA listed species.

e) *Include a Partner Contribution Form, when required, from each partner outlining its role and contribution to the project. This form may be downloaded off the SRFB Web site. State agencies are required to have a local partner that is independently eligible to be a project sponsor. A Partner Contribution Form is also required from partners providing third-party match.*

Partner Contribution Forms Available in PRISM

f) *List all landowner names. Include a signed Landowner Acknowledgement Form (download off the SRFB Web site) from each landowner acknowledging their property is proposed for SRFB funding consideration. If an assessment covers a large area and encompasses numerous properties, Landowner Acknowledgement Forms are not required. For sponsors proposing feasibility/assessment work on their own property this form is not required. For multi-site acquisition projects involving a relatively large group of landowners, include, at a minimum, signed Landowner Acknowledgement Forms for all known priority parcels.*

LOA Forms available in PRISM

Landowners:

Pacific Northwest Salmon Center
Washington Department of Fish and Wildlife

g) *Describe your experience managing this type of project. List the names, qualifications, roles and responsibilities for all known staff, consultants, and subcontractors who will be designing and implementing the project. If unknown, describe the selection process.*

The HCSEG was founded in 1990. During the subsequent nineteen (19) years the HCSEG has completed 121 separate ecosystem preservation, acquisition, and remediation projects at a total cost of approximately $18,500,000.00. All projects have been completed in accordance with design criteria and the overarching project plan(s). This record of achievement and success indicates a near perfect probability of success on this project as well. Specific examples of our work can be accessed on our web site: www.hcseg.org.
Key project supporters include:

1) **Neil W. Werner** – **Project Manager**; Executive Director Hood Canal Salmon Enhancement Group.
2) **Kim Gower - Office Manager** responsible for general administrative business operations.
3) **Mona Pillers – Office Accountant** and Administrative Assistant responsible for the day to day functions of financial accounting; researches information for projects, grants and legislative policies.
4) **Bruce Dees & Associates** Landscape Architecture – Site Planning – Recreation Facilities Design. http://www.bdassociates.com/
5) **Construction Contractor(s)** – The contractor will be selected following the best and final proposal submitted from a list of qualified (responsive & responsible) contractors maintained and updated annually by the HCSEG in accordance with standard policy and procedures.

Others may be selected with experience in near shore and estuary issues and familiar with Hood Canal Watershed prior to contract award(s). No additional expertise is

anticipated for this proposed project.

4) TASKS AND SCHEDULE

List and describe the major tasks and time schedule you will use to complete the project. Non Capital projects should be completed within two years of funding approval.

Objective	Schedule
Complete analysis of the Feasibility Studies	Fall 2009
Develop preliminary design drawings for stakeholders	Fall 2009
Stakeholders approval of concept	Winter 2009
Revision of preliminary design drawings	Winter 2009
Preparation of additional detailed drawings as needed to clarify the design of specific work items	Winter 2009
Preparation of technical specifications to fully describe each part of the work.	Winter 2009
Preparation of a final construction cost estimate	Winter 2009
Submit all required permits	Winter 2009
Preparation of contract bidding documents and general contract conditions.	Spring 2010
Publish RFP's for construction	Spring 2010

5) CONSTRAINTS AND UNCERTAINTIES

Each project should include an adaptive management approach that provides for contingency planning. State any constraints, uncertainties, possible problems, delays, or unanticipated expenses that may hinder completion of the project. Explain how you will address these issues as they arise and their likely impact on the project.

No major constraints, uncertainties or delays are anticipated. Of course other issues may arise that, if left unmanaged, may hinder or delay the completion of the project on time, budget or meeting quality norms. The only sensible strategy is to closely manage the project and deal with or escalate problems or delays as they arise and before they have a chance to spiral out of control. Our team's ability to adaptively manage contingencies is proven and governed by our "readiness strategy".

Readiness-Building Strategy - Readiness for ecosystems restoration begins with the creation of a team dedicated to developing a coherent vision of a successful initiative. Our team is a cross-functional team, made up of scientific, technical, administrative, program / project management, education, and information systems personnel. Their mission is to develop a focused, aligned vision of how ecosystem restoration will meet specific needs articulated in the Governor's Puget

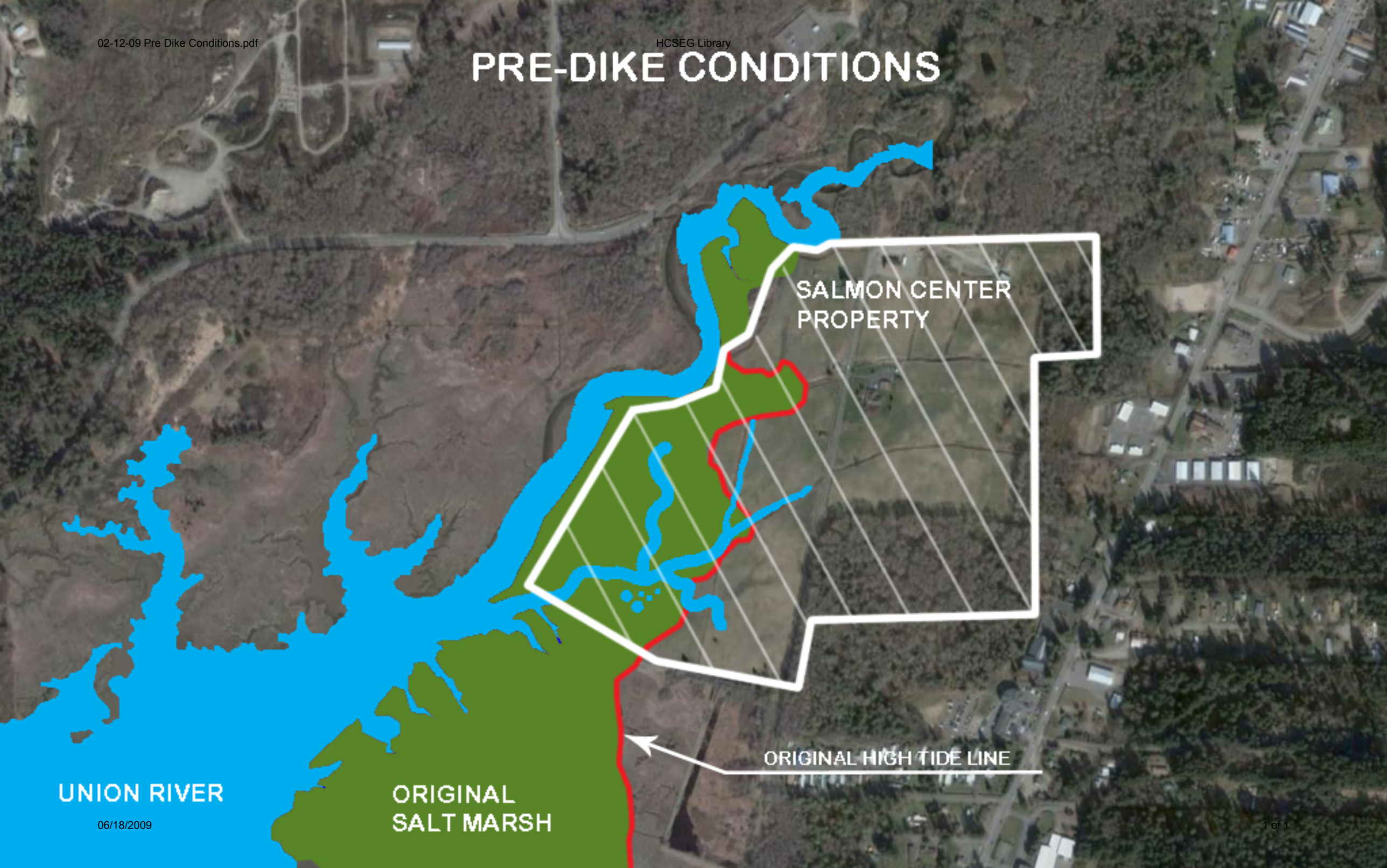
Sound Partnership and the HCCC Recovery Strategy. Moreover the strategy is tailored to fit into the unique Hood Canal / Quilcene Bay environment. This team, along with the Lead Entity helps ensure buy-in and commitment from multiple stakeholder groups as buy-in is considered vital to a successful restoration project.

Our team is formed. We have completed the project assessment and prioritization (initiation) phase, and the planning phase. We have worked together over the years and we are ready to quickly and effectively complete the execution / control and close-out phases of this project.

Supplemental Questions

6) *PROJECTS INVOLVING ACQUISITIONS (Applies to Combination Projects)*– **N/A**

PRE-DIKE CONDITIONS



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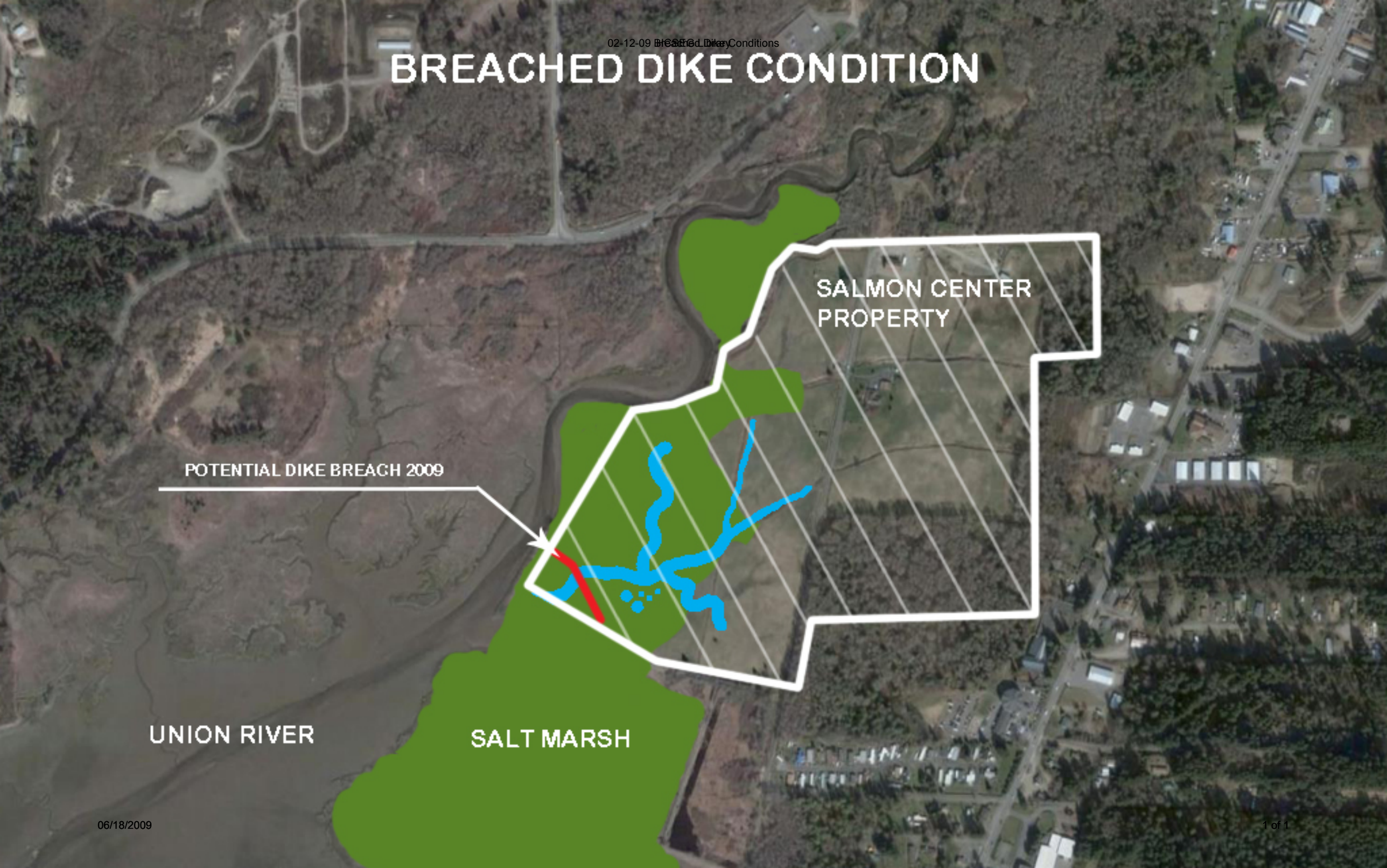
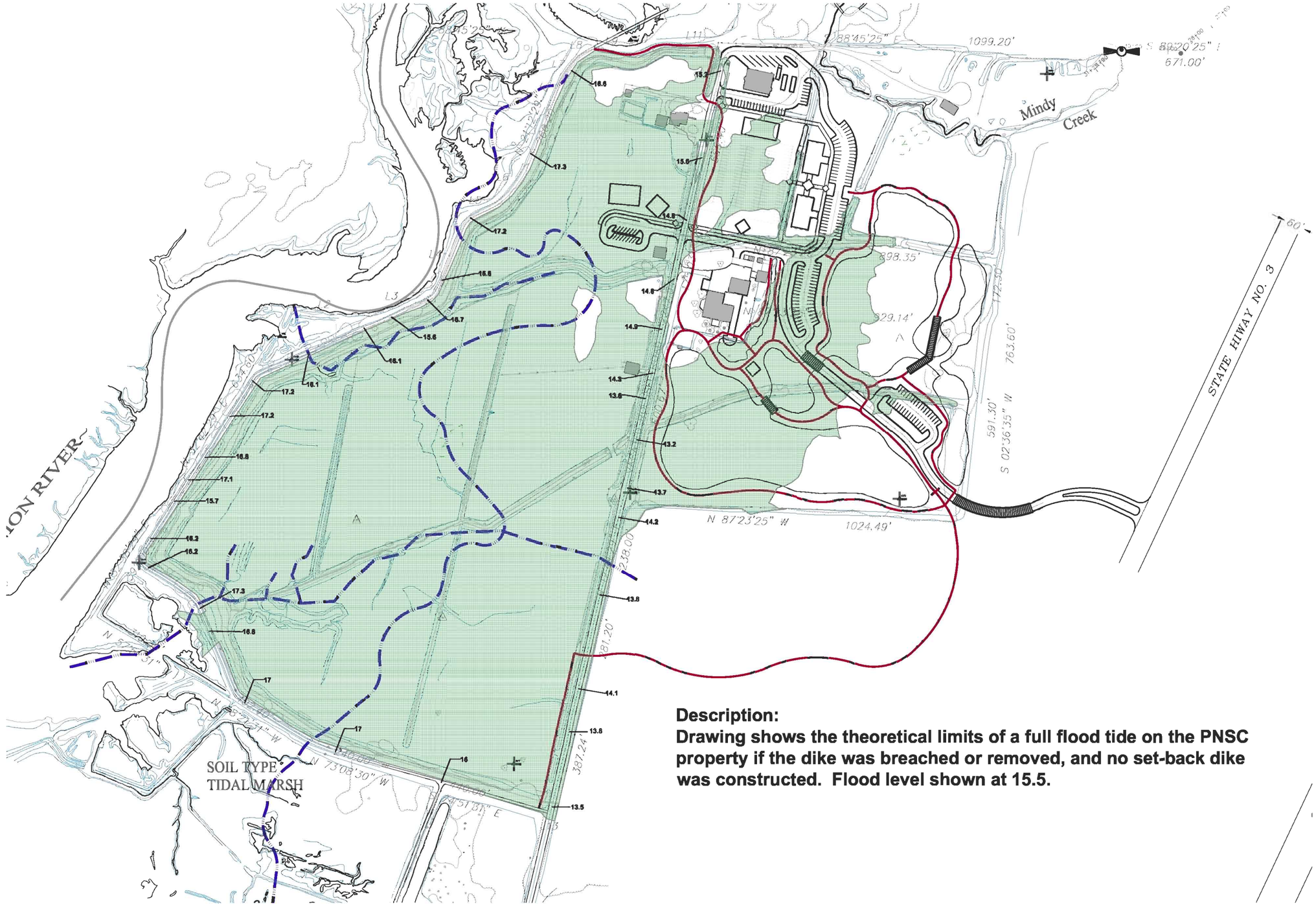
EXISTING CONDITIONS

BREACHED DIKE CONDITION





Description:
Drawing shows the theoretical limits of a full flood tide on the PNSC property if the dike was breached or removed, and no set-back dike was constructed. Flood level shown at 15.5.

Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Full Flood

Belfair, Washington

BRUCE DEES & ASSOCIATES

DATE: 03.11.09
DWN:
CHK:
APP:
DATE:

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Pacific Northwest Salmon Center
Belfair, Washington
MARSH RECLAMATION STUDY - FULL FLOOD

JOB:
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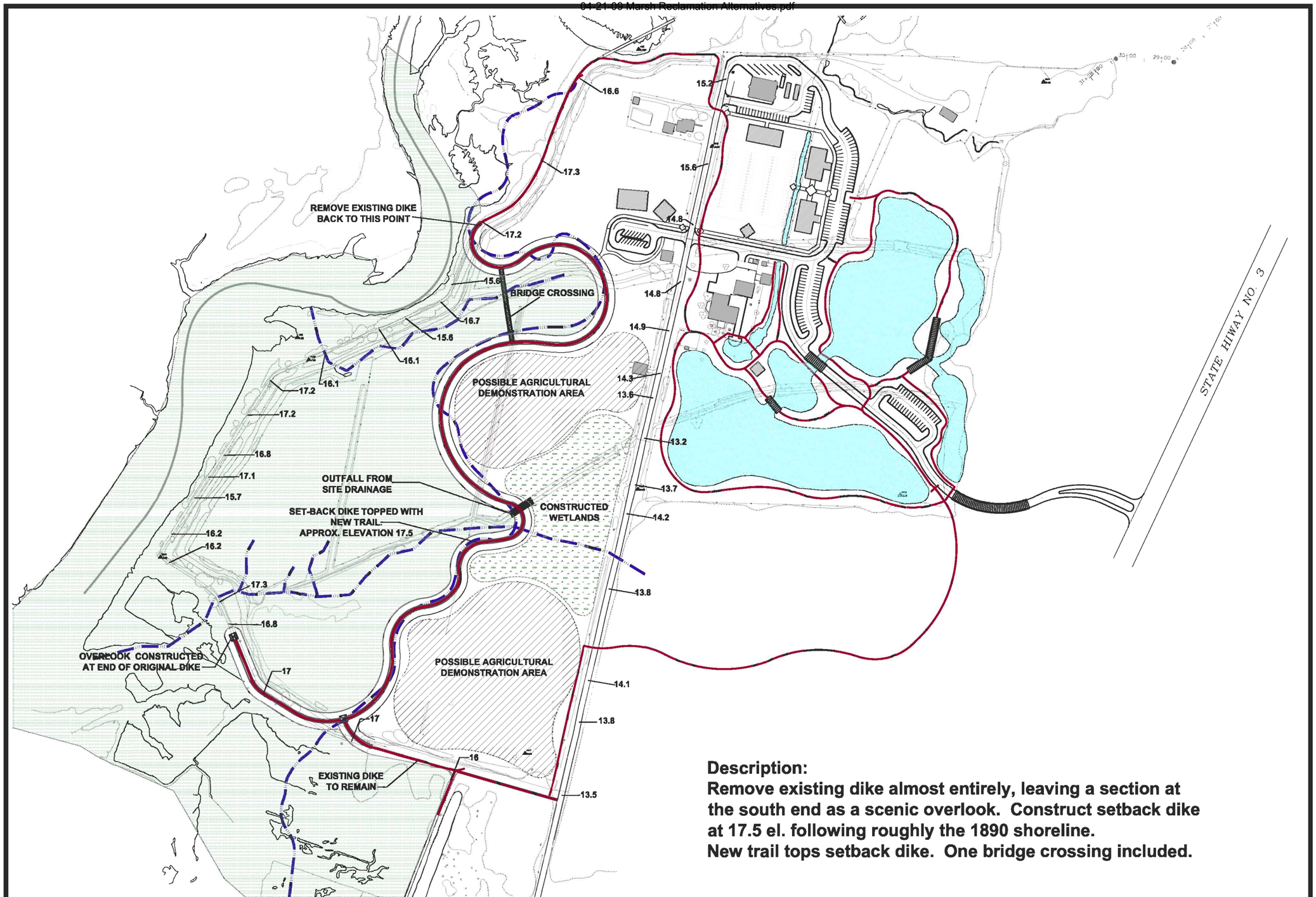

Description:
Remove existing dike almost entirely, leaving a section at the south end as a scenic overlook. Construct setback dike at 17.5 el. following roughly the 1890 shoreline.
New trail tops setback dike. One bridge crossing included.

Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Option A *Belfair, Washington*

BRUCE DEES & ASSOCIATES

DATE: 03.11.09
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Belfair, Washington

SALT MARSH RECLAMATION STUDY - OPTION A

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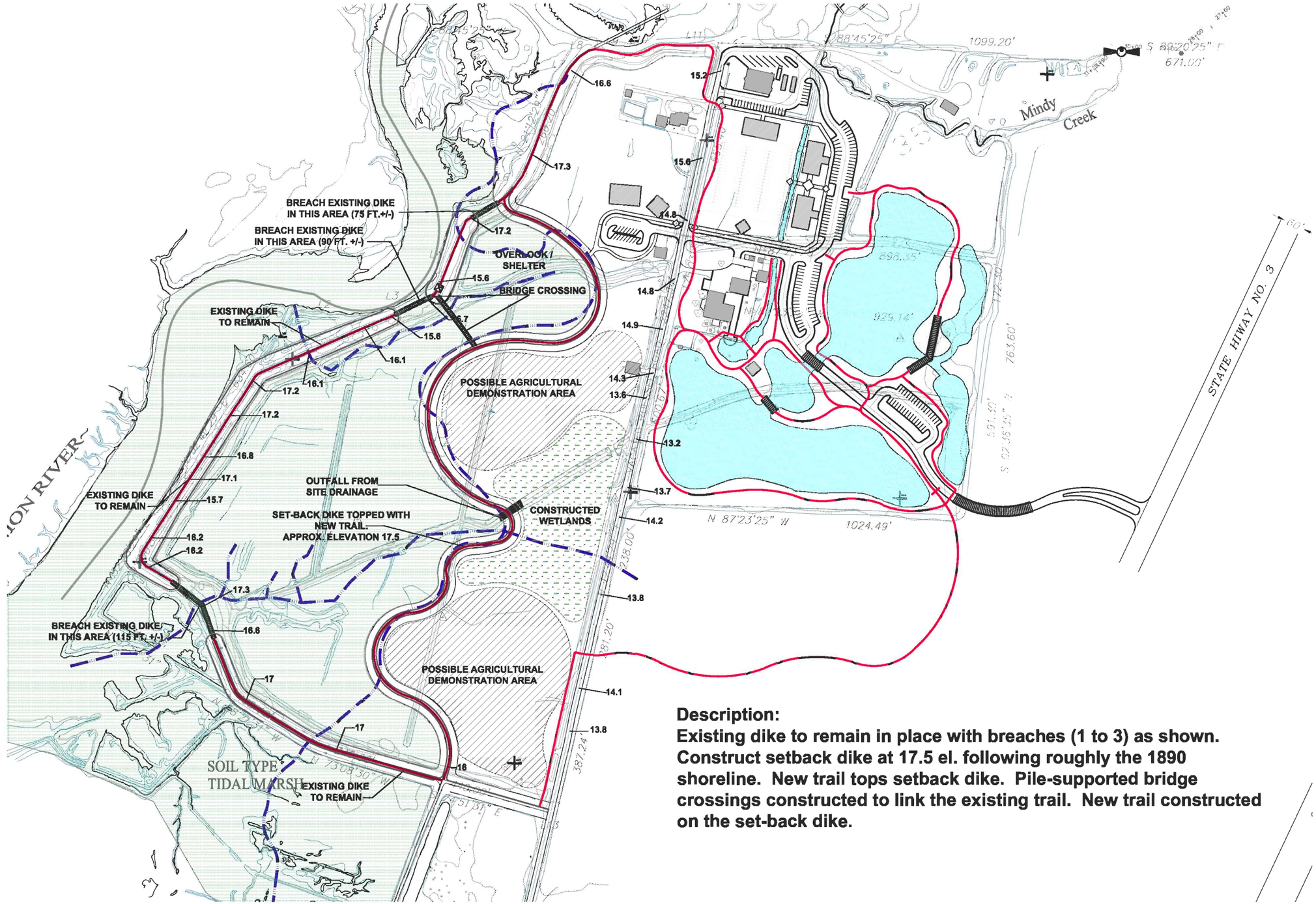

Description:
Existing dike to remain in place with breaches (1 to 3) as shown. Construct setback dike at 17.5 el. following roughly the 1890 shoreline. New trail tops setback dike. Pile-supported bridge crossings constructed to link the existing trail. New trail constructed on the set-back dike.

Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Option B

Belfair, Washington

BRUCE DEES & ASSOCIATES

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Belfair, Washington
SALT MARSH RECLAMATION STUDY - OPTION B

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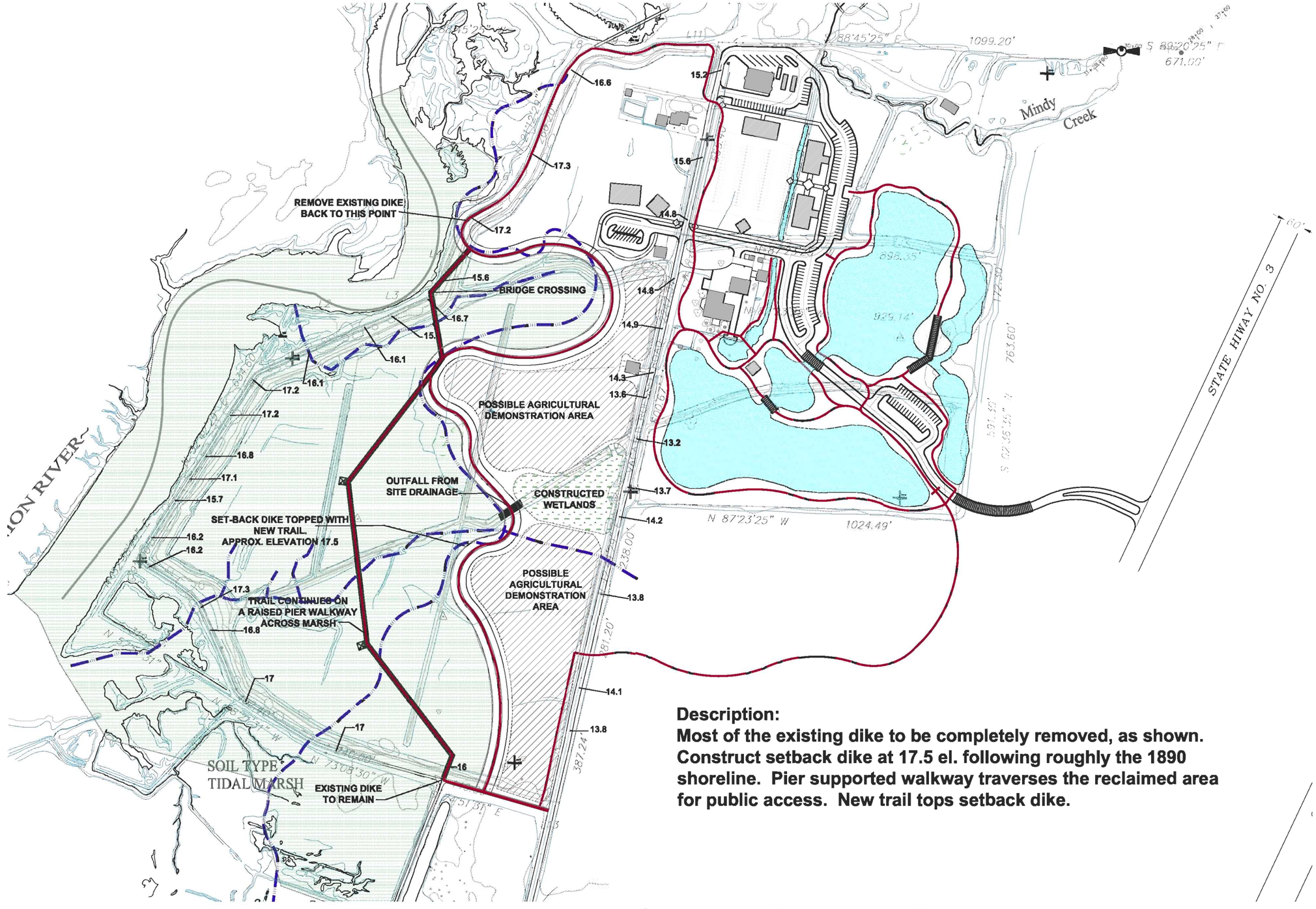

Description:
Most of the existing dike to be completely removed, as shown. Construct setback dike at 17.5 el. following roughly the 1890 shoreline. Pier supported walkway traverses the reclaimed area for public access. New trail tops setback dike.

Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Option C

Belfair, Washington

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Pacific Northwest Salmon Center
Belfair, Washington
MARSH RECLAMATION STUDY - OPTION C

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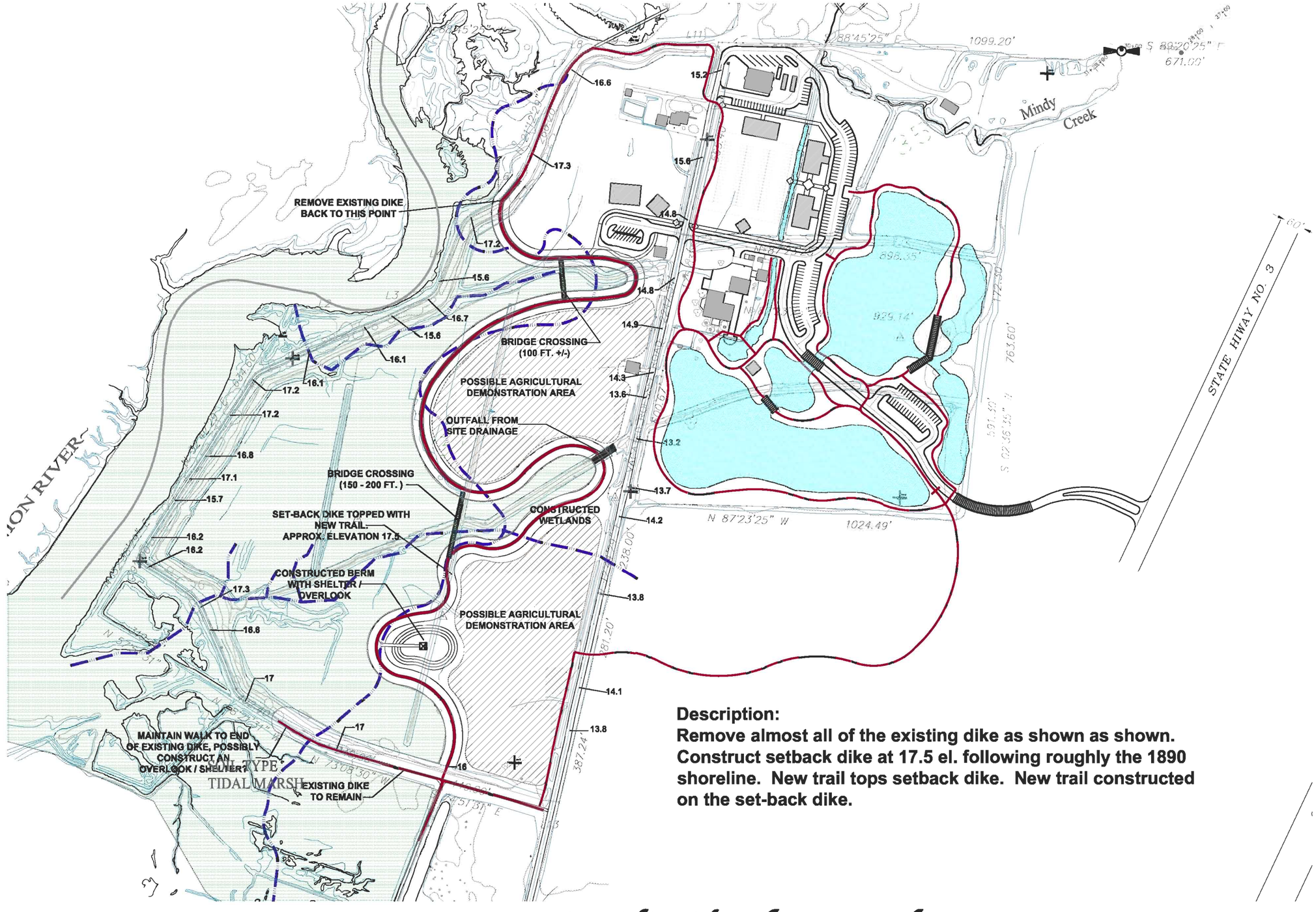

Description:
Remove almost all of the existing dike as shown as shown. Construct setback dike at 17.5 el. following roughly the 1890 shoreline. New trail tops setback dike. New trail constructed on the set-back dike.

Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Option D — *Belfair, Washington*

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MARSH RECLAMATION STUDY - OPTION D

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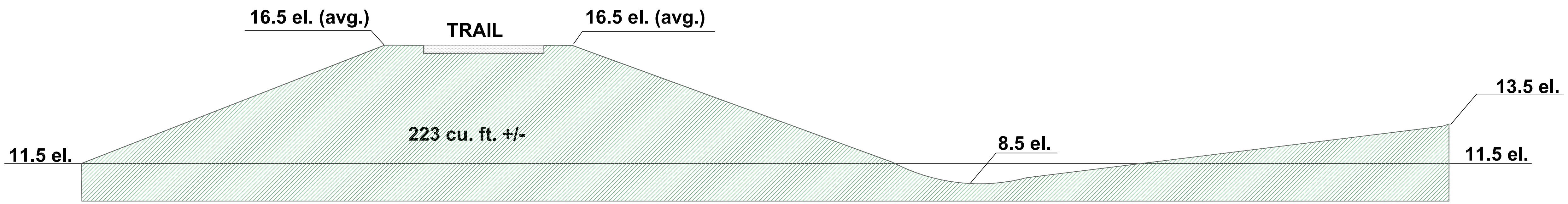
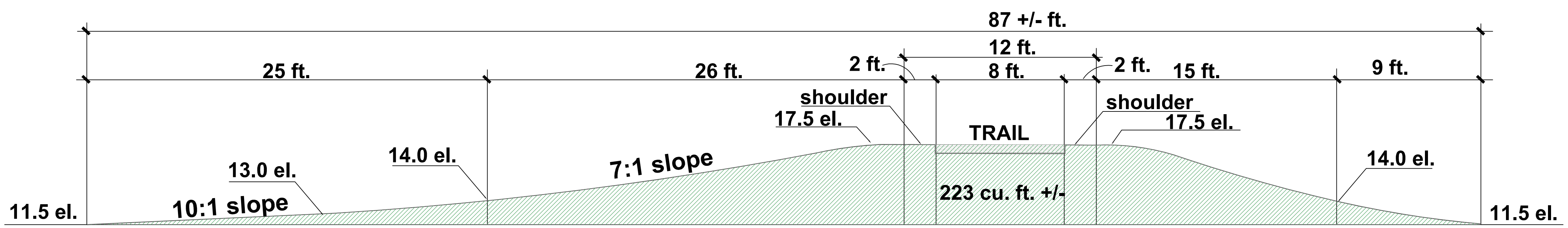


Cross-Section Through Existing Dike

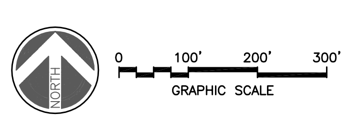
not to scale



Cross-Section Through Proposed Set-Back Dike

not to scale

Description:
Preliminary investigations conclude there is more than adequate material in the existing dike and within the area to be reclaimed, to construct the set-back dike without import.



Pacific Northwest Salmon Center

Marsh Reclamation Concept Plan - Dike Sections *Belfair, Washington*

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BRUCE DEES & ASSOCIATES
Landscape Architecture * Urban Design
Site Planning * Recreation Facilities Design
222 E. 26th St., No. 202, Tacoma, WA 98421 (253)627-7947

DATE: 03.11.09
DWN:
CHK:
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DATE:

REVISIONS | DATE | BY

Pacific Northwest Salmon Center
Belfair, Washington
SALT MARSH RECLAMATION STUDY - DIKE SECTIONS

JOB:
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Sheet E of

Hood Canal SEG; Union Estuary Johnson Farm Dike Design - 136 (#09-1639)

Hood Canal SEG; Union Estuary Johnson Farm Dike Design - 136 (#09-1639)
Attachment #9, Johnson Farm 1 Stitch

Hood Canal SEG; Union Estuary Johnson Farm Dike Design - 136 (#09-1639)

Hood Canal SEG; Union Estuary Johnson Farm Dike Design - 136 (#09-1639)